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April 13, 2017

VIA, ELECTRONIC FILING
The Honorable Jocelyn Boyd
Chief Clerk and Administrator
The Public Service Commission of South Carolina
101 Executive Center Drive
Columbia, South Carolina 29210

Re:
- Docket Number 2017-2-E
- **Post-Hearing Brief of South Carolina Solar Business Alliance**

Dear Ms. Boyd:

Enclosed for filing please find the Post-Hearing Brief of South Carolina Solar Business Alliance, Docket Cover Sheet and Certificate of Service.

All parties of record have been served. Please notify the undersigned if you there is anything else you may need.

Respectfully Submitted,

/s/_____
Richard L. Whitt

RLW/cas

BEFORE

THE PUBLIC SERVICE COMMISSION

OF SOUTH CAROLINA

DOCKET NO. 2017-2-E

IN RE: Annual Review of Base Rates for Fuel Costs for South Carolina Electric & Gas Company	)	**POST-HEARING BRIEF OF SOUTH CAROLINA SOLAR BUSINESS ALLIANCE**

COMES NOW the South Carolina Solar Business Alliance ("SBA"), by and through counsel, and files this post-hearing brief regarding the request of South Carolina Electric & Gas Company ("SCE&G" or "the Company") for Commission approval of revised avoided cost rates for Qualifying Facilities ("QFs") under the Public Utility Regulatory Policies Act of 1978 ("PURPA"), pursuant to S.C. Code Ann. § 58-27-865.[1] As discussed below, the Company's proposed avoided cost rates are not just and reasonable because the underlying calculations rely on uncertain and inaccurate factual assumptions and suffer from methodological problems that result in unreasonably low avoided cost rates, especially for capacity. As a result, the Company's proposed avoided capacity rates for QFs are 70 percent lower than the avoided capacity rates approved by this Commission just one year ago, notwithstanding the fact that the company has not constructed any new capacity during that time, and that the Company only has 2 more megawatts ("MW") of contracted capacity in its portfolio than it did last year.

Because the Company's proposed PR-2 rates are based on dubious factual assumptions and faulty methodologies, this Commission should not approve the proposed rates, but should require the Company to submit revised rates that properly apply approved avoided cost calculation methods, and that reflect a more realistic set of factual assumptions accounting for the substantial uncertainties about the Company's generation resources in the years ahead.

[1] SBA's Post-Hearing Brief is limited to issues related to avoided cost, and does not address other aspects of the fuel rate proceeding conducted under S.C. Code Ann. § 58-27-865.

I. BACKGROUND

In April 2016, this Commission issued an Order approving the Company's proposed fuel costs and approving a Settlement Agreement that established the new PR-2 rate schedule. Docket No. 2016-2-E, Order No. 2016-297 (April 29, 2016) ("Order 2016-297"). In support of the proposed settlement and rates, the Company's witness Lynch (who also testified for the Company in this proceeding) testified that the new PR-2 Rate represented SCE&G's long-run avoided cost rates and would be used in conjunction with negotiating long-term QF contracts. The Company will then update the PR-2 Rate on at least a biannual basis—once in the summer and once in the winter—and more often as necessary. *Id.* at 24.

The SBA was a party to the Settlement Agreement approved by this Commission, and as such agreed, solely for purposes of the 2016 fuel proceeding, that the Company's methodology for calculating avoided costs were reasonable and prudent and that the proposed rate schedules PR-1 and PR-2 were lawful, just, and reasonable. Order 2016-297 at 3. The Settlement Agreement was explicit that the parties' agreement on these issues was intended as a compromise to allow swift resolution of the case, and that it would not constrain, inhibit, or impair their arguments on these issues in future proceedings. *See* Settlement Agreement ¶B.2. *Also see* Settlement Agreement ¶C.4.

The avoided energy costs approved in Order 2016-297 vary by time period, but range from about $.027 to $.039 per kWh, depending on season, time of day, and year. *See* Direct Testimony of Dr. Joseph Lynch ("Lynch Direct Testimony.") at page 10 (summarizing approved and proposed rates). The approved avoided capacity rates were about $.065 / kWh in the summer and $.022 / kWh in the winter, based on an annual avoided capacity cost of $21.34 / kW-year. *Id.* at 11. These approved rates were and are substantially lower than the avoided energy and capacity cost rates approved by this Commission for Duke Energy Progress and Duke Energy Carolinas in May 2016, (whose service territories are adjacent to the Company's, and whose transmission grids are tied to SCE&G's). *See* Docket No. 1995-1192-E, Order No. 2016-349 (May 12, 2016). Although Duke's rates are structured differently, making the contrast hard to see, SBA's witness Dr. Ben Johnson testified without contradiction that SCE&G's proposed energy rates are about 28% lower than Duke's, and that its proposed capacity rates are more than 88% lower. Direct Testimony of Dr. Ben Johnson ("Johnson Direct Testimony.") at 8-9.

This is despite there being no substantial difference between the companies' capacity needs or generating portfolios that could account for such an extreme difference, and the fact that the companies are able to buy and sell energy and capacity amongst themselves. *Id.*[2] As Dr. Johnson testified, where there are real, substantial differences in energy and capacity costs between neighboring utilities, those utilities would be expected to buy and sell power to each other in order to minimize burdens on ratepayers. *Id.* at 10-13.

Notwithstanding the already-low energy and capacity prices in the current PR-2 tariff, the Company now seeks approval of avoided cost rates that are even lower: 0.5% lower for energy, and **70% lower** for capacity. Lynch Direct Testimony. at 10-11. According to Witness Lynch, this drastic decrease in avoided capacity rates has occurred "because the amount of avoidable capacity" in the Company's resource plan has decreased. *Id.* at 11. As discussed further below, these conclusions are based on dubious factual assumptions and an improper application of this Commission-approved methods for calculating avoided cost. As a result, the proposed rates are not lawful, just, or reasonable.

II. ARGUMENT

A. THE COMPANY HAS NOT MET ITS BURDEN OF SHOWING THAT ITS PROPOSED RATES ARE JUST, FAIR, AND REASONABLE.

In this proceeding, the Company bears the burden of demonstrating that its proposed PR-2 rates are just and reasonable and in the public interest, and that they do not discriminate against QFs. 18 C.F.R. § 292.304(a). Under PURPA, energy and capacity rates satisfy these requirements only if they are actually equal to the utility's avoided costs, as determined in accordance with FERC regulations. 18 C.F.R. § 292.304(b)(2). Those regulations define "avoided cost" as "the incremental costs to an electric utility of electric energy or capacity or both which, *but for* the purchase from the qualifying facility or qualifying facilities, [the] utility would generate itself or purchase from another source." 18 C.F.R. § 292.101(b)(6).

[2] Witness Lynch attributed the difference in energy rates between Duke and SCE&G to the higher proportion of natural gas generation in SCE&G's portfolio. Rebuttal Testimony of Joseph M. Lynch ("Lynch Rebuttal Testimony.") at 20:12-21:5. Witness Lynch could not account for the dramatic difference in capacity costs between Duke and SCE&G, beyond simply "noting" (without explanation) that Duke has a higher proportion of nuclear generation in its portfolio. *Id.*

In light of the testimony and other evidence presented in this proceeding, the Company has not, and cannot, meet its burden of showing that its proposed rates actually represent an accurate projection of the Company's avoided energy and (especially) capacity rates over the relevant time period. There are two primary problems with the Company's calculations. First, the calculations rely on a number of factual assumptions that are either highly uncertain or demonstrably incorrect. Second, the Company has improperly applied the Differential Revenue Requirements ("DRR") methodology previously approved by this Commission, in a way that inappropriately lowers its avoided capacity cost calculations, and thus the proposed rates.

1. THE COMPANY'S AVOIDED COST CALCULATIONS RELY ON UNCERTAIN AND INACCURATE FACTUAL ASSUMPTIONS.

As Witness Lynch testified, the primary source of information the Company relied on for its avoided cost calculation is the 2017 Integrated Resource Plan ("2017 IRP") filed for Commission approval on February 28, 2017, updated to reflect changes in fuel price forecasts. *See* Transcript of Testimony and Proceedings, Excerpts Request #2 (Apr. 6, 2017) ("Hearing Tr.") at 3:24-4:8, 28:2-5. Based on information in the IRP, the Company concludes that certain planned capacity additions represent unavoidable capacity, and therefore should not be factored into avoided cost calculations. However, many of the assumptions in the 2017 IRP about the Company's future capacity are highly uncertain or even incorrect, and the Company's reliance on those assumptions cast serious doubt on the reliability of its avoided cost calculations.[3]

For example, the Company's avoided cost calculations assume that the entire 320 MW of solar capacity the Company had under PPAs as of February 23, 2017 (when Witness Lynch's direct testimony was filed) will come online as planned, even though a relatively small proportion of that capacity has actually been developed as of now. Lynch Direct Testimony at 11:7-20; Hearing Tr. at 24:1-7. The Company's resource plan fails to account for the possibility that some of this capacity will not come online in a timely fashion. Indeed, the recent cancellation of the two Innovative Solar projects, representing 40 MW (12.5%) of that capacity, shows that it is unreasonable for the Company to rigidly assume all of the contracted capacity will be available as planned. *See* Hearing Tr. at 9:10-20.

[3] The SBA notes that the IRP itself is subject to public notice and comment. *See* Order 2012-96 (Feb. 1, 2012). This Commission may also order additional proceedings on a proposed IRP, where appropriate. *Id.*

Although Witness Lynch acknowledged that significant changes to the Company's available capacity would justify changes to the PR-2 rate, he nonetheless declined to revise his avoided cost calculations to account for this loss in contracted capacity, deeming it "insignificant" even though (in his estimation) the change would change the Company's avoided capacity cost by almost 16%. *Id.* at 9:21-10:10.[4] Witness Lynch's refusal to consider these facts casts doubt on the reliability of his calculations.

Nor does Witness Lynch's calculation of avoided capacity costs take into account any uncertainty as to the Company's projections as to whether or when other planned additions to generating capacity will come online – despite substantial uncertainty as to when planned units will in fact come online, and despite Witness Lynch's admission that changes to the Company's generation plan could significantly impact its calculation of avoided cost. Hearing Tr. at 47:9-48:18. The Company's assumptions about the availability of nuclear units in particular have proven to be inaccurate in the past, resulting in consistent underestimation of avoided capacity costs. *See* Surrebuttal Testimony of Dr. Thomas J. Vitolo at 5:24-6:8. Especially given recent events, it would be unreasonable not to account for some uncertainty as to the future availability of anticipated capacity that is included in the Company's IRP. By recognizing that the timing and magnitude of planned future capacity additions are not known with certainty, the Company's avoided cost calculations would become more realistic, and more consistent with a "long-run" approach, where capital-related costs are treated as variable, rather than fixed.

The Company also assumes that this Commission will approve the Company's taking an additional 5% interest in the proposed new V.C. Summer nuclear units (with a corresponding increase in available capacity from those units), and that the development of those units will not be further delayed. *See* Docket No. 2017-9-E, *2017 Integrated Resource Plan* (Feb. 28, 2017) ("2017 IRP") at 34; Hearing Tr. at 48:1-18. Witness Lynch acknowledged that the failure of either assumption would have an impact on the Company's avoided cost calculations, especially for capacity. *Id.*

[4] Witness Lynch estimated that factoring in the loss of the two 20 MW PPAs would change the avoided capacity cost by about $1, in comparison to the calculated capacity cost of $6.35 per kW-year. Hearing Tr. at 10:2-3; Lynch Direct Testimony at 11:4-6 (estimate of current avoided capacity cost). This represents a change of almost 16% in avoided capacity costs by recognizing just one of the many uncertainties and inaccurate assumptions used by the Company.

Given the Company's stated uncertainty about its own intentions as to the V.C. Summer units, it is unreasonable to rely on any such assumptions about the timing and magnitude of future available capacity from those units. Nevertheless, the Company's avoided cost calculations are entirely dependent on rigid assumptions concerning its future capacity plans – rather than treating these plans as subject to variability and uncertainty.

The Company *could* have accommodated uncertainty as to the availability of future generating resources in its plans by, for example, discounting the capacity value associated with those resources. Johnson Direct Testimony at 84:11-16. For solar resources, the Company does this by discounting the firm capacity of solar PV plants by 50% to account for uncertainty about the availability of solar generation at peak times. *See* Hearing Tr. at 18:2-11. It does not take this approach to other generation resources, but simply assumes for planning and cost calculation purposes that there is no uncertainty associated with its planned generation resources. This is contrary to the facts and render the Company's avoided cost calculations inaccurate and unreliable.

2. THE COMPANY HAS INCORRECTLY APPLIED THE DRR METHODOLOGY IN CALCULATING ITS AVOIDED ENERGY AND CAPACITY COSTS.

Even if there were no problems with the Company's factual inputs and assumptions, its application of the DRR methodology is faulty and inconsistent with the approach approved by this Commission in Order 2016-297.

As explained by Witness Lynch, the Company uses a DRR methodology for calculating avoided energy and capacity costs. This involves evaluating the revenue requirements between a "base case" (essentially, the resource plan in the IRP) and a "change case" representing the system with 100 MW of additional QF capacity available. Hearing Tr. at 37:24-39:24; *see also* Order 2016-297 at 11.

There are fundamental problems with the way the Company has applied this methodology here. As Dr. Johnson testified, these problems relate primarily to the overly simplified way in which the Company establishes the "base case" and the "change case" under the DRR method (and therefore the possible revenue differential between the two cases). Johnson Direct Testimony at 40:21-41:15, 78:7-82:4. Those simplified assumptions have a significant downward impact on avoided cost estimates. *Id.* at 41:14-15, 44:12-45:2, 89:12-90:4.

For example, the Company assumes that excess capacity cannot be sold to reduce the Company's revenue requirements in the change case. Johnson Direct at 79:18-80:9.[5] More generally, the Company's "change case" assumes that basically every aspect of the resource plan embodied in the IRP, would remain unchanged. Hearing Tr. at 27:6-15; Johnson Direct Testimony at 79:1-4. This includes assuming that the retirement schedules for the Company's existing units will remain unchanged, even though the Company acknowledges in its 2017 IRP, that its retirement schedules for existing coal units are not fixed and *are* subject to change. 2017 IRP at 35-36. As a result, there is no difference in the revenue requirements calculated by the Company in most years, resulting in artificially low avoided capacity rates.

More generally, in its application of the DRR method the company declines to consider any "long-run" changes to its system that would be facilitated by additional QF capacity. As Dr. Johnson testified without contradiction, it is standard practice in calculating PURPA avoided costs to consider utility costs over the "long run" – *i.e.*, over a time period in which the utility can make changes to its capital expenditures (such as building or not building new capacity, or changing the retirement schedules for existing generating plants) – and not over the "short run," during which most capital costs cannot be changed because they are considered fixed or sunk. See Surrebuttal Testimony of Dr. Ben Johnson ("Johnson Surreb. Testimony.") at 17:5-14.

Witness Lynch, however, did not consider it "useful" to consider long-run costs in the DRR change case, and therefore limited the change chase (like the base case) to the resource plan set out in the IRP. Hearing Tr. at 28:22-29:15. As Dr. Johnson testified, however, in applying the DRR methodology (which, again, relies on identifying changes to revenue requirements that can be facilitated by extra QF capacity), it is unreasonable to assume that the company is unable to make changes to its capital investments based on available QF power.

[5] Witness Lynch's only response to Dr. Johnson's Testimony on this is to claim that the Company cannot sell firm, dependable capacity where backed by an intermittent resource such as solar. *See* Lynch Rebuttal Testimony at 26:13-27:2. However, as discussed below, solar facilities are capable of providing firm capacity -- as acknowledged in the Company's planning practices and avoided cost calculations. Furthermore, opportunities to reduce the revenue requirement are not limited to capacity sales; among other options, the Company can also sell firm energy. *See* Johnson Direct Testimony at 80:5-9. Opportunities for profitable firm energy sales increase when solar energy is added to the Company's portfolio of generating resources, but this was ignored when comparing the "base" and "change" scenarios. *See* Johnson Direct Testimony at 81:18-20.

To make such an assumption virtually guarantees that there will be no difference in revenue requirements. Johnson Surrebuttal Testimony at 24:4-9.

Put another way, the Company did not attempt to "optimize" its operation of the system in the change case to account for the possibility of additional QF capacity. Hearing Tr. at 26:9-12.[6] It simply stuck with the operation of the system as contemplated in the IRP, with no long-run changes. Given this refusal to consider significant changes to the operation of its system in the change case, it is not surprising that witness Lynch calculated no difference in revenue requirements in most years using the DRR method. It was unrealistic and unreasonable for the Company to apply the DRR methodology using these simplified assumptions, and this Commission should require the Company to revise its calculations using a proper application of the methodology.

B. SOLAR PV PROJECTS ARE CAPABLE OF PROVIDING FIRM CAPACITY.

The Company's witness Lynch also testified that in his opinion solar generation is "unreliable," and suggested that solar facilities are not capable of providing "firm generation" because of their intermittency. Hearing Tr. at 18-19. Witness Lynch's misgivings about solar generation are unsupported by the facts, and are inconsistent with the Company's treatment of solar generation for planning purposes.

As the Company's witness Lynch acknowledged, solar resources have a generation profile that is generally predictable on a daily and seasonal basis. *Id.* at 19:19-22. Although weather impacts the output of individual facilities in ways that may be unpredictable, witness Lynch also acknowledged that on a system-wide basis those weather-related events tend to average out. *Id.* at 20:13-15.

[6] In approving this Commission's application of the DRR methodology in Order 2016-297, this Commission relied in part on Witness Lynch's Testimony that the DRR method incorporates a resource optimization plan model to calculate the revenue requirements in the base case and the change case (*see* Order 2016-297 at 16 ("Witness Lynch also explained that the DRR methodology uses a resource optimization planning model to calculate the present worth of revenue requirement under base case assumptions and under a change case assuming a QF purchase with the difference in revenue requirements between the two model runs resulting in the total avoided cost associated with the QF.")), Witness Lynch acknowledged at the hearing that the Company does not in fact, utilize a resource optimization planning model in its application of the DRR model. Hearing Tr. at 26:9-12. This is confirmed by Dr. Johnson's analysis of the work papers provided by the Company. Johnson Direct Testimony at 41:3-8.

Other types of generating units also have unpredictable outages -- as experienced, for example, by several of the Company's conventional generation units (totaling more than 800 MW) at the same time in early 2014. Hearing Tr. at 49:3-19. For this reason, as explained by the Company's witness Lynch, firm capacity sold as a "very marketable and desirable" product by the Company is backed up not by any one unit, but by the system as a whole. *Id.* at 33:19-23.

So despite witness Lynch's misgivings about solar energy, the Company readily accommodates the variable output of individual solar PV plants by assigning a 50% firm capacity factor to such units. The Company's witness Lynch's own department does this for planning purposes in the current IRP, and follows the same practice in calculating its avoided capacity rates. Hearing Tr. at 16:4-13.[7] So even though Witness Lynch purports to "worry" about firm solar capacity, he acknowledges that 50% represents a reasonable estimate of the firm capacity of solar based on observations of the output of units on the Company's system. *Id.* at 17-18.

In other words, Witness Lynch's testimony that solar does not provide firm capacity is inconsistent with his department's and the Company's actual practice in planning capacity and calculating avoided costs.

III. REBUTTAL FOR THE HEARING RECORD

During the April 6, 2017, Hearing in this matter, an SCE&G Witness testified several times that the Company felt as if Solar Business Alliance Witness Paul Fleury, in his Pre-Filed Direct Testimony, took positions inconsistent with the Settlement Agreement entered into by, *inter alia*, the Company and SBA. A review of the following provision from the Settlement Agreement referenced by the Company's Witness, reveals that SBA had ample latitude to take the position that was taken in SBA's Witness' Testimony.

> "The Settling Parties agree that this Settlement Agreement will not constrain, inhibit or impair their arguments or positions held in future proceedings, nor will this Settlement Agreement or any of the matters agreed to in it be used as evidence or precedent in any future proceeding." *See* Provision "C.4.", on page 11, of the Settlement Agreement, filed April 5, 2016, in Docket 2016-2-E.

[7] If the Company were to assign a lower firm capacity factor to solar, it would reduce the amount of "unavoidable capacity" under contract on its system – thereby increasing avoided capacity rates.

IV. CONCLUSION

For the foregoing reasons, this Commission should issue an Order including the following findings:

b. There are significant problems with the Company's application of the DRR methodology, previously approved by this Commission, in its calculation of revised avoided cost rates for energy and capacity. Specifically:

   1. In formulating the "change case" its application of the DRR methodology, the Company fails to adequately account for the possibility of "long-run" changes to its generating portfolio; and

   2. The Company fails to adequately account for the potential sale of firm energy or capacity during periods of excess capacity.

c. The Company's calculation of avoided costs for energy and capacity, as reflected in its proposed PR-2 rates, is based on uncertain and inaccurate factual assumptions as to the Company's future generating resources. Specifically, the Company:

   1. Fails to account for the loss of 40 MW of contracted solar capacity due to the cancellation of the Innovative Solar projects;

   2. Fails to account for uncertainty as to whether and when planned capacity under contract will achieve operation; and

   3. Fails to account for uncertainty as to whether and when the planned V.C. Summer nuclear units will commence operation.

d. The Company has failed to meet its burden of demonstrating that the proposed PR-2 rates are just and reasonable.

e. The Company may re-submit new proposed PR-2 rates to this Commission for approval. However, the revised rate calculations should reflect revised methodologies and updated factual assumptions consistent with this Commission's Order.

f. And for such other and further relief as this Commission deems just and appropriate.

[Signature Page Follows]

Respectfully Submitted,
/s/

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April 13, 2017
Columbia, South Carolina

BEFORE

THE PUBLIC SERVICE COMMISSION

OF SOUTH CAROLINA

DOCKET NO. 2017-2-E

IN RE: Annual Review of Base Rates for Fuel Costs for South Carolina Electric & Gas Company	)	**CERTIFICATE OF SERVICE**

I, Carrie A. Schurg, an employee of Austin & Rogers, P.A., certify that I have served the Post-Hearing Brief of South Carolina Solar Business Alliance, Docket Cover Sheet and this Certificate of Service, via electronic mail on April 13, 2017.

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April 13, 2017
Columbia, South Carolina